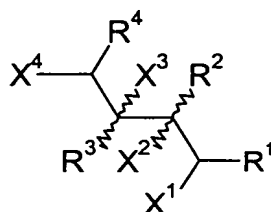


We claim:-

1. A process for removing horny substances from hides of dead animals, wherein the hides of dead animals are treated with at least one substance of the formula I



or at least one corresponding alkali metal, alkaline earth metal, ammonium or phosphonium salt,

where

$R^1$  and  $R^4$  are identical or different and are selected from hydrogen,  $C_6-C_{14}$ -aryl and  $C_1-C_{12}$ -alkyl, unsubstituted or substituted by one or more SH or OH groups,

$R^2$  and  $R^3$  are identical or different and are selected from hydrogen,  $C_6-C_{14}$ -aryl and  $C_1-C_{12}$ -alkyl, unsubstituted or substituted by one or more SH or OH groups,

at least one radical  $R^2$  or  $R^3$  not being hydrogen

or  $R^1$  and  $R^4$  not being hydrogen,

and it being possible in each case for two vicinal radicals  $R^1$  to  $R^4$  together to be alkylene,

$R^5$  is selected from hydrogen,  $C_1-C_{12}$ -alkyl,  $H-C=O$  or  $C_1-C_4$ -alkyl- $C=O$ ,

$X^1$ ,  $X^2$ ,  $X^3$  and  $X^4$  are selected from OH, SH and  $NHR^5$ , where,

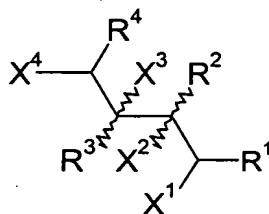
if  $R^1$  to  $R^4$  contain at least one sulfur atom, at least one radical  $X^1$  to  $X^4$  is SH,

and, if  $R^1$  to  $R^4$  contain no sulfur atom, at least two radicals  $X^1$  to  $X^4$  are SH.

2. A process according to claim 1, which is carried out in aqueous liquor.

3. A process according to claim 1 or 2, which is carried out in the presence of basic alkali metal salts.

4. A process according to any of claims 1 to 3, wherein  $X^1$  and  $X^4$  are each SH.
5. A process according to any of claims 1 to 4, wherein
  - 5  $R^1$  and  $R^4$  are hydrogen,
  - $R^2$  is methyl,
  - $R^3$  is selected from hydrogen and methyl,
  - $X^1$  and  $X^4$  are each SH and
  - $X^2$  and  $X^3$  are each OH.
- 10 6. A process according to any of claims 1 to 5, which is carried out in the presence of at least one enzyme.
7. A pelt obtainable by a process according to any of claims 1 to 6.
- 15 8. A compound of the formula I



and its corresponding alkali metal, alkaline earth metal, ammonium and phosphonium salts,

where

$R^1$  and  $R^4$  are identical or different and are selected from hydrogen,  $C_6-C_{14}$ -aryl and  $C_1-C_{12}$ -alkyl, unsubstituted or substituted by one or more SH or OH groups,

$R^2$  and  $R^3$  are identical or different and are selected from hydrogen,  $C_6-C_{14}$ -aryl and  $C_1-C_{12}$ -alkyl, unsubstituted or substituted by one or more SH or OH groups,

at least one radical  $R^2$  or  $R^3$  not being hydrogen

or  $R^1$  and  $R^4$  not being hydrogen,

and it being possible in each case for two vicinal radicals  $R^1$  to  $R^4$  together to be alkylene,

$R^5$  is selected from hydrogen,  $C_1-C_{12}$ -alkyl,  $H-C=O$  or  $C_1-C_4$ -alkyl- $C=O$ ,

$X^1$ ,  $X^2$ ,  $X^3$  and  $X^4$  are selected from OH, SH and  $NHR^5$ , where,

if  $R^1$  to  $R^4$  contain at least one sulfur atom, at least one radical  $X^1$  to  $X^4$  is SH,

and, if  $R^1$  to  $R^4$  contain no sulfur atom, at least two radicals  $X^1$  to  $X^4$  are SH.

9. A compound according to claim 8, wherein  $X^1$  and  $X^4$  are each SH.

5 10. A compound according to claim 8 or 9, wherein

$R^1$  and  $R^4$  are hydrogen,

$R^2$  is methyl,

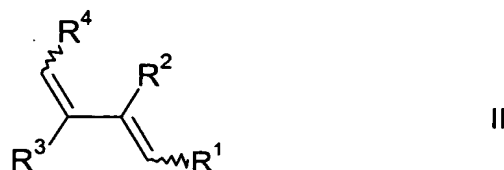
$R^3$  is hydrogen or methyl,

10  $X^1$  and  $X^4$  are each SH and

$X^2$  and  $X^3$  are each OH.

11. A process for the preparation of compounds of the formula I, wherein

15 (a) in a first stage, a diene of the formula II

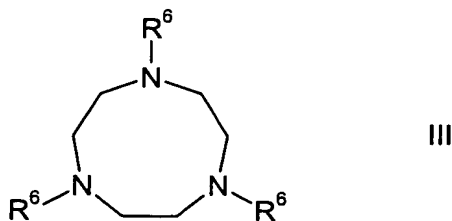


is reacted in the presence of a catalyst which is obtainable by bringing into  
20 contact

at least one manganese compound, selected from  $A_2Mn(Y^1)_4$ ,  $AMn(Y^1)_3$ ,  $MnY^2$ ,  
 $Mn(Y^1)_2$  and  $Mn(Y^1)_3$

with at least one ligand L of the formula III

25



where

30  $Y^1$  are identical or different and are selected from monovalent anions,

$Y^2$  is a divalent anion,

A is selected from alkali metal and ammonium, which may be alkylated,

$R^6$  are identical or different and are selected from  $C_1$ - $C_{20}$ -alkyl,

and with at least one coligand which is derived from monocarboxylic acid, dibasic or polybasic carboxylic acids or diamines,  
with at least one peroxide to give the bisepoxide,

- 5 (b) which is reacted in the presence of at least one basic catalyst with at least one nucleophile.
12. A process according to claim 11, wherein the coligand is oxalate.
- 10 13. A process according to either of claims 11 and 12, wherein the nucleophile chosen is  $\text{H}_2\text{S}$  or  $\text{H}_2\text{N-R}^5$ .
14. A process according to any of claims 11 to 13, wherein at least one basic catalyst in stage (b) is selected from alkali metal hydrogen sulfide, alkali metal hydroxide  
15 and benzyltri( $\text{C}_1\text{-C}_{10}$ -alkyl)ammonium hydroxide.
15. A process according to any of claims 11 to 14, wherein  $\text{X}^1$  and  $\text{X}^4$  are each SH.
16. A process according to any of claims 11 to 15, wherein, in formula I, the variables  
20 are chosen as follows:
- $\text{R}^1$  and  $\text{R}^4$  are hydrogen,  
 $\text{R}^2$  is methyl,  
 $\text{R}^3$  is hydrogen or methyl,  
25  $\text{X}^1$  and  $\text{X}^4$  are each SH and  
 $\text{X}^2$  and  $\text{X}^3$  are each OH,  
and wherein  $\text{H}_2\text{S}$  is chosen as the nucleophile.